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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,548	03/21/2005	Eiichi Ito	AOY-3989US	3981
23122	7590	06/27/2006	EXAMINER	
RATNERPRESTIA			SMITH, JOHNNIE L	
P O BOX 980			ART UNIT	PAPER NUMBER
VALLEY FORGE, PA 19482-0980			2881	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/528,548

Applicant(s)

ITO ET AL.

Examiner

Johnnie L. Smith II

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-16 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0321.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 recites the limitation "the time a portion and the time a whole" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2003/0007444 (Tsukuda et al). In reference to claims 1-3, Tsukuda teaches an electron beam exposure method in which an article subjected to exposure and an electron beam irradiation spot are moved relative to each other

at a continuous speed (paragraph 0049); wherein the article is exposed at a plurality of irradiation intensities of an electron beam by changing a transmittance of an electron optical system for forming the electron beam irradiation spot on the article (paragraph 0055); wherein the transmittance of the electron optical system is changed by changing a state of hitting of a blanking mask by the electron beam (paragraph 0049); and wherein the state of hitting of the blanking mask by the electron beam is changed by controlling a state of deflection of the electron beam by a blanking deflector (paragraphs 0049 and 0054).

6. In reference to claim 14, Tsukuda teaches an electron beam exposure method wherein the article is used for manufacturing a master of an optical information-recording medium (abstract).

7. In reference to claims 15 and 16, Tsukuda teaches an electron beam exposure apparatus in which an article subjected to exposure and an electron beam irradiation spot are moved relative to each other at a continuous speed (paragraph 0049), comprising: an electron optical system for forming the electron beam irradiation spot on the article (abstract); and a blanking means for changing a transmittance of the electron optical system such that the article is exposed at a plurality of irradiation intensities of the electron beam by the electron optical

system (paragraph 0055) and wherein the blanking means includes a blanking deflector and a blanking mask (figure 1).

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0007444 (Tsukuda et al). In reference to claims 6, Tsukuda teaches all elements upon which the claim depends but fails to clearly teach the electron beam exposure method having a limitation of a plurality of transmission shapes of the electron beam being formed on the blanking mask such that the exposure is

performed at a plurality of the irradiation intensities of the electron beam. Tsukuda does teach varying the applied voltages to the deflection electrodes which moves the electron beam position, therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have such a limitation since beam control is being taught by Tsukuda and one would be compelled to modify the teaching for that purpose.

11. In reference to claims 7-10, Tsukuda teaches an electron beam exposure method wherein when a direction of deflection of the electron beam is changed continuously by a blanking deflector, the irradiation intensity of the electron beam changes discontinuously; wherein when a direction of deflection of the electron beam is changed continuously by a blanking deflector, the irradiation intensity of the electron beam changes continuously; wherein when the blanking mask is moved continuously, the irradiation intensity of the electron beam changes continuously; and wherein a transmission shape of an aperture is changed continuously such that the irradiation intensity of the electron beam changes continuously (paragraphs 0049-0050).

12. In reference to claims 11-13, Tsukuda teaches all elements upon which the claim depends but fails to clearly teach the electron beam exposure method wherein after the exposure of the article, a pattern is formed on the article by one

of wet etching and dry etching and wherein a chemically amplified resist layer is formed on the article. Tsukuda does however teach the limitation of one of a pit and a line or both of the pit and the line are formed spirally on the article by the exposure (abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to have such limitations as discussed above since the said limitations are merely a variety of exposure techniques one of which is clearly taught by Tsukuda.

### *Claim Objections*

13. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All of the references cited on attached PTO 892 contain art similar to that being claimed by applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnnie L. Smith II whose telephone number is 571-272-2481. The examiner can normally be reached on Monday-Thursday 6-4 P.M..

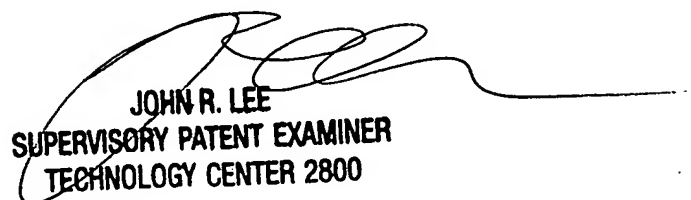
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LSII

Johnnie L Smith II  
Examiner  
Art Unit 2881



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